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SOCIETY PROCEEDINGS

THE HELMINTHOLOGICAL SOCIETY OF WASHINGTON

The twenty-fifth regular meeting of the Society was held at the residence of Dr. Stiles on March 26, 1915, Dr. Stiles acting as host and Dr. Ransom as chairman.

Dr. Cobb presented some figures of a species of *Bunonema*, pointing out the fact that the large cuticular bosses, which had been described by other workers as dorsal or ventral, were really located on the right side of the worm in this genus, the animal in consequence being notably asymmetrical.

Dr. Cobb also gave a demonstration of the workings of the new Bausch & Lomb projection apparatus, using the nitrogen-filled, tungsten-filament bulb.

Dr. Stiles gave a résumé of the sanitary campaign in some parts of the southern United States, and pointed out the considerable advantage to be gained by methods of civic education as opposed to the use of military and police methods. Educational methods work from the inside, and secure cooperation without arousing hostility. In actual practice, the greatest reforms accomplished anywhere in the South were accomplished without the arrest of a single individual or the imposition of one fine. A striking economic feature of the work in Wilmington, North Carolina, was the appropriation of \$50,000 by the city to be used as a loan fund for the installation of sewer service. Any person financially unable to install sewer service could borrow the necessary money from the city, the city taking a lien on the property for the loan, and could pay the money back in easy instalments, the city charging 6 per cent. interest on the loan.

Dr. Hall presented a paper entitled "A Case of *Taenia saginata* Presenting Structural Abnormalities and Associated with Spurious Parasitism in an Infant."

Dr. Ransom exhibited some specimens of trichinae digested out of meat exposed three weeks to temperatures of 15, 10 and 5 F., respectively, and for comparison some specimens digested out of unfrozen meat. The normal trichinae examined at room temperature were seen to be tightly coiled; the esophageal cell body was brown in color; its nuclei clear and vesicular, and the reproductive cells formed a continuous hyaline mass. Those from meat exposed to 15 F. were less tightly coiled; the color of the cell body was less pronounced; the granulation of the protoplasm of the esophageal cells differed somewhat from normal, and in some cases there was a tendency toward dissociation of the reproductive cells. Those from meat exposed to 10 F. were loosely coiled, and in many cases had assumed the form of a figure 6; the color of the cell body was much paler than normal; the nuclei of the esophageal cells were more or less solidified; the protoplasm of these cells was abnormally granular, and the reproductive cells were more or less dissociated, tending toward a spherical form. The larvae from meat exposed to 5 F. had assumed the form of a figure 6; the esophageal cell body had entirely lost its brown color; the nuclei were solidified or not apparent; the protoplasm showed a pronounced abnormal granulation, and the reproductive cells were either dissociated or broken down into a granular mass. The exact nature of the changes produced by low temperatures is not known, but it is evident that the changes become more marked as the temperature becomes lower. Possibly there is a separation of colloids which are unable after thawing to resume their former relations in the protoplasmic complex. The viability of the larvae is materially affected by exposure to low temperatures. Infections may result after exposure to temperatures of 10 F. and 15 F., but none has resulted in numerous trials from the feeding of meat exposed for

three weeks to temperatures of 5 F. and lower. Examined on a warm stage most of those exposed to 15 F. are active motile; a smaller proportion of those exposed to 10 F. are active, whereas none of those exposed to 5 F. or lower have exhibited other than very feeble movements, and only very rarely have they shown even the faintest signs of life.

MAURICE C. HALL, *Secretary.*

The twenty-sixth regular meeting of the Society was held at the residence of Dr. Ransom on April 22, 1915, Dr. Ransom acting as host and Mr. Crawley as chairman.

Dr. Stiles presented a paper on the parasites of schoolchildren in a Southern city. The data were tabulated with regard to race, sex and the presence of sewer connections or privy in the home of the pupil. Of 2,448 white children, fecal samples were obtained from 776; and of 1,346 negro children, fecal samples were obtained from 511. Of the total number of children, 2,448 white and 1,346 negro, 20 per cent. of the white children and 76 per cent. of the negro children were from homes with privies. A higher percentage of samples was obtained from negro children (38 per cent.) than from white children (32 per cent.), showing that it is possible to obtain the cooperation of the negroes to a notable extent, if the cooperation is sought in the right manner. The poorer showing of the white children is to be explained in part by the natural diffidence displayed by white girls, samples being obtained from only 26 per cent. of these.

Of 776 white pupils, 36.73 per cent. had intestinal parasites, and of 511 negroes, 49.12 per cent. had intestinal parasites. It is evident, then, that the negroes, coming from homes usually provided with privies (76 per cent.) and seldom with sewer connections, have a higher infestation than white children coming from homes usually provided with sewer connections and seldom provided with privies (20 per cent.). However, the percentage of infestation among negro boys and girls was practically identical, indicating a similar degree of cleanliness or lack of it for both sexes, whereas the percentage of infestation among white boys was higher than among white girls, indicating a greater degree of cleanliness among the white girls as compared with white boys. The white boys from homes provided with sewers showed a greater degree of infestation than white girls from homes having only privies. It may be surmised that this follows not only from the greater cleanliness of the white girls, but a more roving disposition on the part of the white boy. The white boys from home having privies showed a greater infestation than negro boys and girls from similar homes, but in connection with these figures it should be noted that the number of white boys in this category is very small and the resultant percentage less apt to be reliable or representative.

Parasites were considered in two groups: 1. Those that could only be acquired as the result of ingesting human feces in some way, and including *Entameba*, *Lamblia*, *Trichomonas*, *Oxyuris*, *Ascaris* and *Trichuris*. 2. Those that might be acquired in some other way, including *Hymenolepis* and *Necator*.

Of the 776 white children, 28 per cent., and of 511 negro children, 48 per cent., were infested with parasites of the first group, the infestation for each parasite being as follows: *Entameba coli*, 8.7 per cent. of whites and 11.9 per cent. of negroes; *Lamblia*, 12.7 per cent. of whites and 6.5 per cent. of negroes; *Trichomonas*, only 5 infestations, all in whites, 0.6 per cent.; *Ascaris lumbricoides*, 7.5 per cent. of whites and 27.9 per cent. of negroes; *Oxyurias vermicularis*, only 3 infestations, all in whites, 0.4 per cent.; *Trichuris trichiura*, 1.3 of whites and 11.5 per cent. of negroes.

Of the same children, 10.9 per cent. of the white children and 3.5 per cent. of the negroes were infested with parasites of the second group, the infestation for each parasite being as follows: *Hymenolepis nana*, only 3 cases, 0.3 per cent. of whites and 0.2 per cent. of negroes; *Necator americanus*, 10.7 per cent. of whites and 3.3 per cent. of negroes. The question may be raised as to whether the thicker skin and the odor of the feet may serve as a protection in the case

of the negro, or whether there is a partial resistance developed in the native home of the parasite and of the negro in Africa.

Dr. Ransom presented a note reporting a case of *Paragonimus westermanii* or *P. kellicotti* in a cat. The diagnosis is based upon eggs found in the bronchial mucus and muscles by Dr. W. H. Schultz of Morgantown, West Virginia, specimens of which were sent to the Bureau of Animal Industry for identification. Cases of *Paragonimus* are occasionally found in hogs killed at certain meat inspection stations, particularly at Cincinnati, Ohio, but none of these cases has been traced to the point of origin. Hence the present case is of special interest, as it indicates a probable center of infection, in the neighborhood of which other cases may be expected to occur.

Mr. Crawley presented a note on the geometrical ratio of multiplication in the increase of protozoa in infestation, with an apparent exception in the case of sarcosporidia.

The presence of *Sarcocystis muris* in a mouse from which the skin has been removed, is readily detected. The cysts, owing to the presence of refractive granules, look like white threads running lengthwise in the muscles. When scarce, however, they may be confused with the connective tissue fibers or even overlooked altogether, and such cases can only be positively diagnosed by the use of the microscope.

In the case of thirteen mice, which either died or were killed at known periods after inoculation, five were macroscopically negative, but the microscope showed them to be positive. The periods elapsing between inoculation and death were, respectively, 75, 75, 83, 211 and 273 days.

The remaining eight mice were all macroscopically positive, and the character of the infections was classified as slight, moderate and severe, the latter being those cases wherein the flesh of the mouse is so overloaded with cysts that, considered as a whole, it is white and not red. The slight infections numbered two, with periods of 100 and 205 days. The moderate infections numbered four, with periods of 158, 175, 225 and 233 days. The two severe infections had periods of 216 and 233 days.

The indications from these data are that the time during which the infection has lasted and the intensity it finally assumes bear no relation to each other. Thus, two of the cases which required the microscope for their demonstration had periods of 211 and 273 days, whereas the periods for the two severe cases were only 216 and 233 days.

Hence the inference is that the number of cysts which finally appear in the muscles is directly related to the number of spores originally ingested. If so, this would constitute a noteworthy exception to the general rule for infections of parasitic protozoa to the effect that the severity an infection ultimately attains bears no relation to the number of individuals originally inoculated. This, of course, is due to the fact that, in general, the parasites increase in geometrical ratio, and continue to do so until the host succumbs or establishes a successful resistance. This latter contingency cannot be invoked in the present case, since *Sarcocystis muris* is fatal to mice.

The data above given were obtained only incidentally in the course of a study of the life history of *S. muris*, and hence cannot be regarded as at all conclusive.

MAURICE C. HALL, *Secretary*.

APPENDIX

For the convenience or information of investigators, attention is called to the place of publication of the earlier proceedings of the Helminthological Society of Washington. Previous to publication in THE JOURNAL OF PARASITOLOGY, all the Proceedings were published in *Science*, as follows:

Vol. 33, new series, No. 840, pp. 197-198, Feb. 3, 1911 (first and second meetings).

Vol. 33, new series, No. 848, pp. 510-512, March 31, 1911 (third meeting).

- Vol. 33, new series, No. 850, pp. 590-592, April 14, 1911 (fourth meeting).
Vol. 33, new series, No. 860, pp. 974-976, June 23, 1911 (fifth and sixth meetings).
Vol. 35, new series, No. 901, pp. 553-556, April 5, 1912 (seventh, eighth and ninth meetings).
Vol. 35, new series, No. 903, pp. 635-636, April 19, 1912 (tenth meeting).
Vol. 35, new series, No. 906, p. 756, May 10, 1912 (eleventh meeting).
Vol. 37, new series, No. 941, p. 78, Jan. 10, 1913 (twelfth meeting).
Vol. 37, new series, No. 944, pp. 197-198, Jan. 31, 1913 (thirteenth meeting).
Vol. 37, new series, No. 952, pp. 498-499, March 28, 1913 fourteenth meeting).
Vol. 37, new series, No. 954, pp. 577-578, April 11, 1913 (fifteenth meeting).